HP User Manual for the Integrated NVIDIA SATA RAID Array for Microsoft® Windows® XP Professional

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Integrated SATA RAID controller

This document supplements *NVIDIA RAID User's Guide* by describing how to set the BIOS to enable SATA hard drives for use in the NVIDIA SATA RAID array.

Note: When referring to the *NVIDIA RAID User's Guide*, please note that the HP xw9300 Workstation does not support the following features:

- Hot Plug Array
- RAID across PATA
- Dedicated Spare Disk

Note: Before taking advantage of RAID functionality, you must have two or more SATA HDDs connected to the integrated SATA RAID controller. Refer to the *Service and Technical Reference Guide* for your workstation by visiting www.hp.com/go/workstationsupport and navigating to the manual site.

Caution: Before proceeding, verify the location of the drive that contains the operating system.

Caution: Back up all user data before enabling SATA RAID. This process destroys all data on the drives used in the RAID set.

Setting Up a Non-Bootable NVIDIA RAID Array

A system with a non-bootable RAID array includes a separate hard disk that contains the operating system and is not part of the RAID array

Step 1—Enabling RAID option

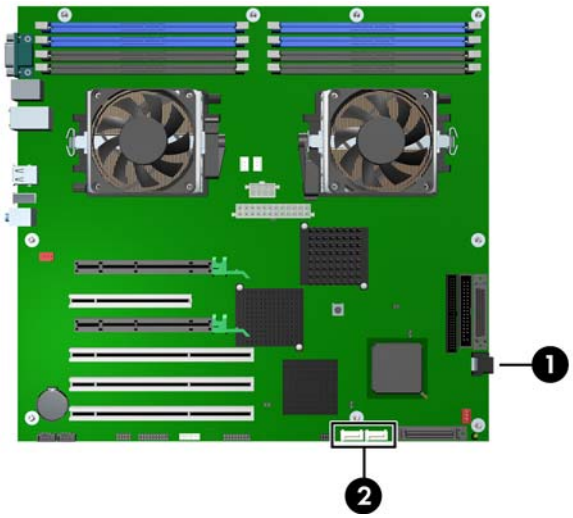
1. Turn on or restart the workstation.
2. Press the **F10** key as soon as the monitor light turns green or if the display has turned on and there is a list of key options listed on the bottom line of the monitor.

   NOTE: If you do not press the **F10** key at the appropriate time, you must try again. Turn the workstation off, then on again, and press the **F10** key again to access the utility.
3. Use the arrow keys (up or down) to select your language from the list and press **Enter**.
4. Use the arrow keys (left, right, up, or down) to make the selections. Select **Advanced > Device Options** and press **Enter**. All SATA RAID ports will by default be enabled. If needed, use the arrow keys to set **SATA RAID** to **Disable**. The following menu options are displayed:

SATA PORT 0 RAID	Enable
SATA PORT 1 RAID	Enable
SATA PORT 2 RAID	Enable
SATA PORT 3 RAID	Enable

   NOTE: If ports are enabled for RAID and not set up in an array they will be used as free disks for the configured RAID arrays. They will need to be managed through the NVRAIDMAN tool. If a non-RAID data disk is desired, RAID must be disabled in the BIOS setup.

5. Enable the ports you want to use for RAID. SATA ports 0 (top) and 1 (bottom) are at location . SATA ports 2 (left) and 3 (right) are at location .



6. Press the **F10** key to accept changes.
7. To apply and save changes, use the arrow key (left or right) to select **File** and use the arrow key (up or down) to select **Save Changes and Exit**, then press **Enter**.

   The following window is displayed: "Save Change and Exit. Are you sure you want to Save Changes and Exit? F10=Yes ESC=No." Press the **F10** key.

   NOTE: Do NOT turn the workstation power OFF while the ROM is saving your computer changes because CMOS corruption could occur. After you exit the F10 Setup screen, it is safe to turn off your computer.

Step 2—Configuring RAID

Refer to *NVIDIA RAID User's Guide* for detailed instructions for configuring the RAID array. You can find the manual at http://www.hp.com/support/workstation_manuals.

1. Restart your workstation.
2. Press any key during POST to view POST messages.
3. During the reboot, press the **F6** key to enter the NVIDIA RAID Utility. Use the keys listed on the bottom line of the configuration utility to make selections or changes.

   The *NVIDIA RAID User's Guide* explains each position for entry.
4. Select the **RAID Mode**. Your choices are Mirroring, Striping, Spanning, or Stripe Mirroring.
5. Select the **Striping Block**. It is recommended to use the Optimal setting, which is the default (64KB). Your choices are 4KB, 8KB, 16KB, 32KB, 64KB, and 128KB.
6. Select the **Free Disks**. The disks displayed here are those that you could enable as SATA RAID in the BIOS.
7. Highlight the disks to include in the array and add them to the **Array Disks** box.

   Warning: The following step will destroy any data on the drives used in the RAID set. Only answer Y if all user data has been backed up.
8. Press the **F7** key to create the RAID array.

   The following window is displayed: "Clear disk data? [Y] Yes [N] No." Press **Y** to continue.

   NOTE: The next window will show the RAID volume you just created with a status of Healthy.

The Array List window is displayed. This window allows you to review the RAID arrays that you have set up.

9. Press **Enter** to display the array detail window.
10. Press **Enter** again to return to the Array List window.
11. Press **Ctrl + X** to exit RAID setup.
12. Press **F10** to enter the BIOS setup menu.
13. Select your language.
14. Use the arrow keys (left, right, up, or down) to make the selections. Select **Storage > Controller Order** and set the boot disk to first in the boot order.
15. Press the **F10** key to accept the changes.
16. To apply and save changes, use the arrow key (left or right) to select **File** and use the arrow key (up or down) to select **Save Changes and Exit**, then press **Enter**.

    The following window is displayed: "Save Change and Exit. Are you sure you want to save changes and exit? F10=Yes ESC=No." Press the **F10** key.

Step 3—Initializing the disk array

1. After the system comes up, click **Start** and right-click on **My Computer** and then click **Manage**.
2. Under the Storage section, click **Disk Management**.
3. Click **Next**.
4. Select the disks to initialize and click **Next**.
5. Select the disks to convert and click **Next**.
6. If you want to make the array a dynamic disk, click **Next**.
7. Click **Finish**.
8. To use the unallocated space, right-click **Unallocated space > New Partition** and follow the on-screen instructions. If you do not use a quick format, this step could last more than an hour.

Step 4—Obtaining more information

Refer to *NVIDIA RAID User's Guide* for more information on the RAID array. You can find the manual at http://www.hp.com/support/workstation_manuals

The manual contains the following additional chapters:

- About NVIDIA RAID
- Using the NVRAIDMAN Utility
- NVIDIA RAID Frequently Asked Questions
- NVIDIA RAID Application Notes

Setting Up a Bootable NVIDIA RAID Array

In a bootable RAID array, the OS is installed on the RAID array disks.

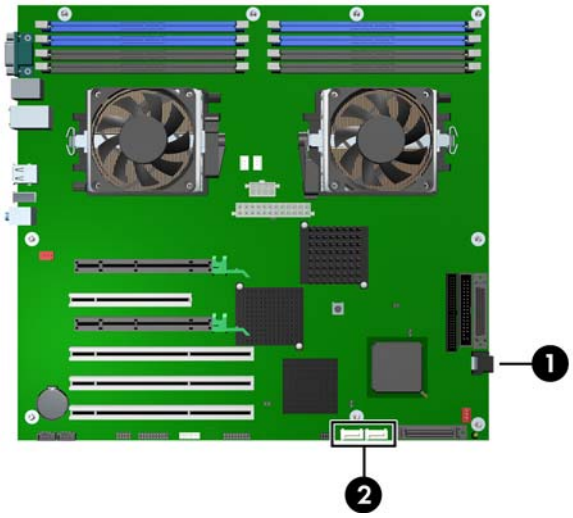
Step 1—Enabling RAID option

1. Turn on or restart the workstation.
2. Press the **F10** key as soon as the monitor light turns green or if the display has turned on and there is a list of key options listed on the bottom line of the monitor.

   NOTE: If you do not press the **F10** key at the appropriate time, you must try again. Turn the workstation off, then on again, and press the **F10** key again to access the utility.
3. Select your language from the list and press **Enter**.
4. Use the arrow keys (left, right, up, or down) to make the selections. Select **Advanced > Device Options** and press **Enter**. All SATA RAID ports will by default be enabled. If needed, use the arrow keys to set **SATA RAID** to **Disable**. The following menu options are displayed:

SATA PORT 0 RAID	Enable
SATA PORT 1 RAID	Enable
SATA PORT 2 RAID	Enable
SATA PORT 3 RAID	Enable

5. Enable the ports you want to use for RAID. SATA ports 0 (top) and 1 (bottom) are at location . SATA ports 2 (left) and 3 (right) are at location .



6. Press the **F10** key to accept changes.
7. To apply and save changes, use the arrow key (left or right) to select **File** and use the arrow key (up or down) to select **Save Changes and Exit**, then press **Enter**.

   The following window is displayed: “Save Change and Exit. Are you sure you want to save changes and exit? F10=Yes ESC=No.” Press the **F10** key.

   NOTE: Do NOT turn the workstation power OFF while the ROM is saving your computer changes because CMOS corruption could occur. After you exit the F10 Setup screen, it is safe to turn off your computer.

Step 2—Configuring RAID

Refer to *NVIDIA RAID User's Guide* for detailed instructions for configuring the RAID array. You can find the manual at http://www.hp.com/support/workstation_manuals

1. Restart your workstation.
2. Press any key during POST to view POST messages.
3. During the reboot, press the **F6** key to enter the NVIDIA RAID Utility. Use the keys listed on the bottom line of the configuration utility to make selections or changes.

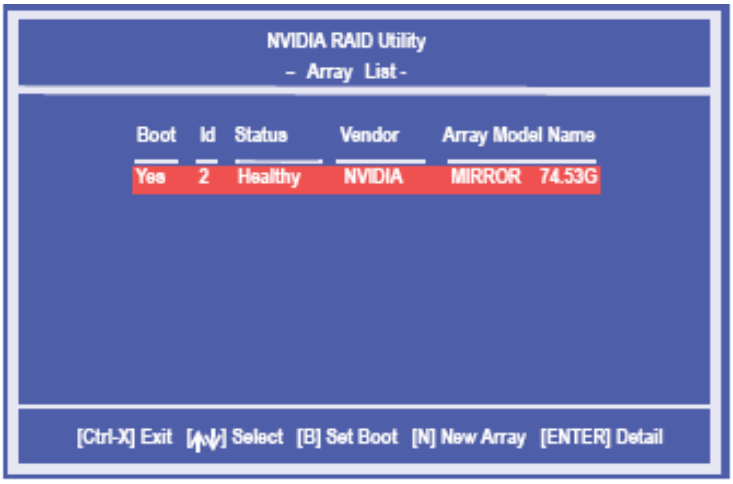
   The *NVIDIA RAID User's Guide* explains each position for entry.
4. Select the **Raid Mode**. Your choices are Mirroring, Striping, Spanning, or Stripe Mirroring.
5. Select the **Striping Block**. It is recommended to use Optimal (64KB), which is the default setting. Your choices are 4KB, 8KB, 16KB, 32KB, 64KB, and 128KB.
6. Select the **Free Disks**. The disks displayed here are those that you enabled as SATA RAID in the BIOS.
7. Highlight the disks to include in the array and add them to the **Array Disks** box.

   Warning: The following step will destroy any data on the drives used in the RAID set. Only answer Y if all user data has been backed up.
8. Press the **F7** key to create the RAID array.

   The following window is displayed: "Clear disk data? [Y] Yes [N] No." Press **Y** to continue.

   NOTE: The next window will show the RAID volume you just created with a status of Healthy.

   The Array List window is displayed. This window allows you to review the RAID arrays that you have set up.
9. Use the arrow key to select the array that you want to set up and press **B** to specify it as bootable.


NVIDIA RAID Utility
- Array List -
Boot Id Status Vendor Array Model Name
Yes 2 Healthy NVIDIA MIRROR 74.53G
[Ctrl-X] Exit [↑↓] Select [B] Set Boot [N] New Array [ENTER] Detail

10. Press **Enter** to Return to the Array List screen.
11. Press **Ctrl + X** to exit RAID setup. .
12. Turn off the workstation.
13. Turn on the workstation.
14. Insert the **Restore Plus!** CD and follow the instructions for installing Windows XP.

    OR

Insert the Windows OS CD if doing a manual OS install and follow the *NVIDIA RAID User's Guide* instructions for Installing the RAID Drivers when Setting Up a Bootable NVIDIA RAID Array.

15. Initialize the array. When booting from a SATA RAID, the drives are already set up correctly by Windows XP, so no RAID-specific management is required.

Step 3—Verifying boot order

If you need to boot from a SCSI disk, you must change the boot order using the following steps. If you are booting from a SATA disk, it is likely that you do not need to change the order because SATA is the boot disk in the default boot order.

1. Restart your workstation.
2. Press the **F10** key as soon as the monitor light turns green or if the display has turned on and there is a list of key options listed on the bottom line of the monitor.

   NOTE: If you do not press the **F10** key at the appropriate time, you must try again. Turn the workstation off, then on again, and press the **F10** key again to access the utility.
3. Select your language from the list and press **Enter**.

   Use the arrow keys (left, right, up, or down) to make the selections. If you are installing the OS on the RAID array, select **Storage > Controller Order** and set the boot disk to first in the boot order.

   Press the **F10** key to accept the changes.
4. To apply and save changes, use the arrow key (left or right) to select **File** and use the arrow key (up or down) to select **Save Changes and Exit**, then press **Enter**.

   The following window is displayed: "Save Change and Exit. Are you sure you want to save changes and exit? F10=Yes ESC=No." Press the **F10** key.

Step 4—Obtaining more information

Refer to *NVIDIA RAID User's Guide* for more information on the RAID array. You can find the manual at http://www.hp.com/support/workstation_manuals

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For more information

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